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FINAL REPORT
TO
U.S. FISH AND WILDLIFE SERVICE
FOR
IMPLEMENTATION OF
HORSE CREEK MIGRATION BARRIER PROJECT

14-48-0001-95671 95-HR-12

March 2001

2002-010197/NF

Horse Creek Migration Barrier Project
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The following report is submitted to the United States Fish and Wildlife Service concerning the Horse Creek Migration Barrier project 14-48-0001-95671, 95-HR-12 implemented by Oak Knoll Ranger District on behalf of the Klamath National Forest.

Horse Creek Migration Barrier Project

Abstract:

Under this project an earth dam used to divert the main stem of Horse Creek into Middle Creek for irrigation will be replaced with a concrete structure. The structure will incorporate a fish ladder to facilitate the migration of fish in the stream. It will also be constructed so that the barrier can be removed during the non-irrigating season for unobstructed flow during winter months. 640 feet of 2 ft. diameter culvert will be used to transport the diverted water for delivery into Middle Creek.

Introduction:

A large earthen and rock dam is being utilized to divert irrigation water from Horse Creek. Portions of this dam have been washed out each year with high flows causing significant amounts of sediment to be deposited downstream on existing spawning beds.

This dam has also acted as a migration barrier to fall Chinook and Coho Salmon spawning runs on Horse Creek.

Description of Project Area:

The dam was placed approximately 640 feet above the confluence of Horse Creek and Middle Creek, T46N R10W Sec.8.

Cost Share:

The total cost share figures for this project are as follows:

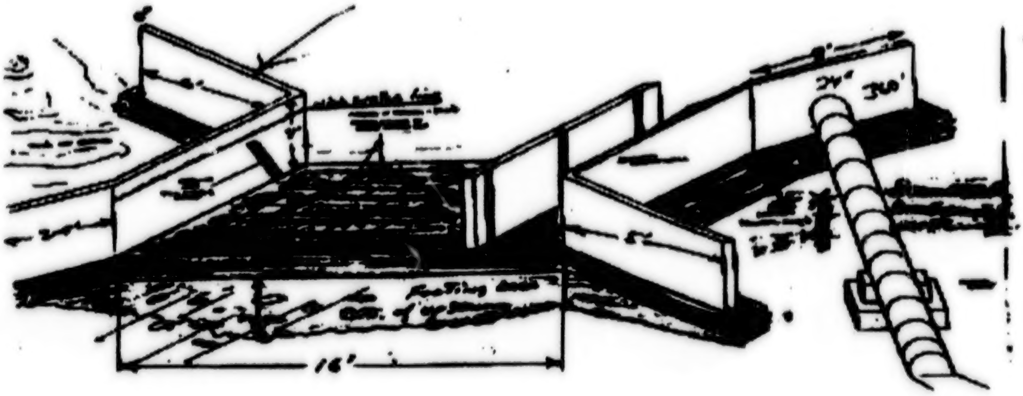
The U.S. Forest Service contributed $5700.00 in salary expense for pre-construction planning. This included project design, securing landowners permission/cooperation, field visits to site with U.S. Army Corps of Engineers, California Department of Fish and Game, and U.S. Fish and Wildlife Service for design and permit consultation.

The California Department of Fish and Game contributed $27,338.60. This included heavy equipment, materials, and labor to construct concrete dam.

Method:

Prior to starting this project, the main stem of Horse Creek had to be diverted around the project site. This was accomplished by building a temporary dam consisting of certified weed free straw bales draped with irrigation plastic across the stream above the project site. A temporary channel was created to allow the flow of water to travel around the site.

Once this was completed and the main channel dry, utilizing the expertise of the California Department of Fish and Game employees, a foundation of concrete was laid and the forms were constructed for the sides and wall of the dam as shown below.



During the time the dam was being constructed, thirty loads of riprap boulders were hauled to the project site. These boulders were placed all along the bank of the stream on the side where the culvert was going to be laid, to armor and protect the bank during storm events.

The wing on the east side of the dam housed the first section of culvert that was to be used to transport the diverted water to Middle Creek. Once this culvert was in place, the trench from the dam to the first turn, approximately 300 feet, was dug and the galvanized culvert was laid to grade. In the original plan, a clean out structure was not planned for this bend in the culvert. However, after construction began it was determined that a clean out would be needed. Once the clean out structure was built, the final leg of the trench was completed from the structure to Middle Creek.

The construction of the dam was completed by late summer. The temporary dam upstream was removed and the steam was placed back into its main channel.

All but 80 feet of the culvert was laid to grade before winter set in and the project had to come to a halt.

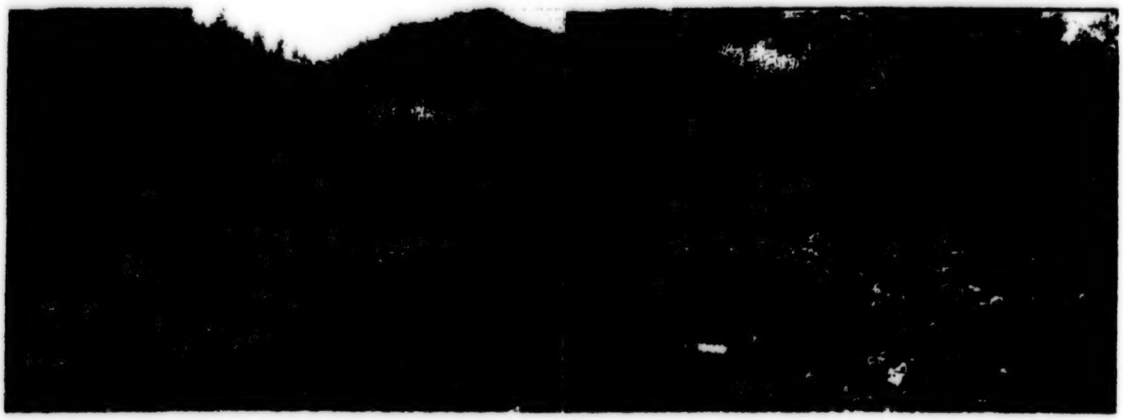
In May of 1996, the rest of the culvert was laid. The system was tested and was determined to be functioning properly.

Summary and Conclusion:

After completion of the project, the local rancher was given a tour and shown the operation. He was very pleased with the outcome and his concern about volume of delivery into Middle Creek was satisfied.

The structure functioned for one season in 1996. On January 1, 1997, a major storm event passed through the area, resulting in massive flooding. The diversion dam suffered damage during this storm and was destroyed by high water. The stream channel also changed course and bypassed the dam site entirely. The only part of the project that survived the flood was the clean out structure and approximately 340 feet of culvert from the structure to Middle Creek.

With some modifications, the local rancher now utilizes the clean out structure as an inlet to divert his water into Middle Creek. Because of this, the issues of an earthen dam being built every year causing sediment concerns and being a fish migration barrier are still present.



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